SOIL conservation

U.S. Department of Agriculture / Soil Conservation Service / March 1976

From the Administrator

Subtle Signs of Conservation

More Americans will travel this year to get a closer look at their country during the Bicentennial. Many will be noticing for the first time the impact of conservation on the landscape.

Windbreaks, contour stripcropping, and farm ponds may leap out at us. But there are more subtle signs of conservation, including the plants that replenish the soil and hold it in place.

When European settlers came to the New World, they found a cover that had to be removed for farming. By the time this country was 100 years old, much of the topsoil was gone and the soil exhausted. Some 40 years ago, the damage was so acute that soil was blowing 2,000 miles, from the Plains to the Potomac.

Since then, we've been involved in the selection of plants—both native and introduced—to help with this job of conservation.

In California, we're working on fire retardant plants in areas prone to devastating fires. In Texas, we've helped develop improved grasses that give protection to millions of acres of pasture and rangeland.

Recently, we helped two soil conservation districts in Colorado establish an environmental plant center to develop varieties and assure their commercial availability for reclamation of mined areas in the Upper Colorado Region.

We've also provided technical assistance to the Alaska State Department of Natural Resources to establish a plant materials center to meet the increasing needs for conservation plant materials there.

Early this year, we cooperatively released three certified varieties of native wildflowers for commercial production in the Midwest. These wildflowers, used with native grasses, will help control soil erosion and restore and beautify roadsides and rangeland.

We've now just released another new variety, 'Streamco' purpleosier willow, to protect streambanks in the Northeast. It's already proved invaluable in stream repair projects following tropical storm Agnes.

There's no part of the country where such subtle signs of conservation aren't taking root. Thousands of soil conservation district cooperators each year provide sites for field tests and keep records to help select superior conservation plant materials. SCS's 20 plant materials centers work with them and with other agencies, land grant colleges and universities, and commercial producers in this effort.

It's an effort that is enhancing our country not only for us during the Bicentennial but for generations to come.

SOIL conservation

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Secretary of Agriculture

R. M. Davis, Administrator
Soil Conservation Service

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COVER: This snow might have blown and piled up around a farmyard or road, but for the landowner who put in the shelterbelt of Russian olive. The shelterbelt, south of Fergus Falls, Minnesota, has trapped about 10 feet of snow.

Rube Goldberg–Type Invention Sows Cover Crops in Corn

by Karl Hellerick
District conservationist, SCS, Lebanon, Pennsylvania

It uses a rubber ball, some pipe, a 50-gallon drum, a spring, and a piece of rope. It may seem at first like a Rube Goldberg invention, but it is really the ingenious solution to a conservation problem. It is a forage harvester converted to a seeder for sowing rye in standing corn.

In Lebanon County, Pennsylvania, we found more and more farmers had stopped sowing cover crops in corn. There were valid reasons for not sowing a winter cover crop to protect and enrich the land. Herbicides, such as atrazine, used in corn prevented the use of ryegrass. Decreased cultivation limited the opportunity to sow a cover crop, and seeding after the corn was harvested was too late.

So, there was our problem. We needed to find a way to sow a cover crop which wasn't affected by herbicides in standing corn. Knowing that two or more heads are better than one, I called on help from other agricultural "experts." Giving an able assist were Newton Bair, County Extension Agent; Ronald Bowers, a vo-ag teacher; and Donald Bollinger, farmer and conservation district director.

First solution was to use rye for a cover crop because rye is not affected by herbicides. Next, I had an idea that there must be an easy way to blow the seed into corn. The result was using a forage harvester converted into a blower to make the seeding. A 50-gallon drum makes a fine seed hopper, and a rubber ball on a wire through the bunghole makes a simple shutoff valve.

District Director Don Bollinger offered to provide the seed, equipment, and a place to try the idea. We used plastic sheets spread on the ground to check distance, distribution, and seed cracking. Through experimentation we were able to regulate seeding rates by varying ground speed.

We found that the blower spread the seed effectively for a 60-foot width. This means that by seeding from each edge,

Don Bollinger's cover crop was sown with the blower late last summer. Corn was harvested in mid-September and by November, the rye was 8 to 10 inches high.

Author Karl Hellerick (left) checks the unique blower-seeder he helped design with Donald Bollinger (on tractor) and Newton Bair (right).

a 120-foot-wide contour strip can be seeded by this method. Maximum width for contour strips in Pennsylvania is 120 feet, according to SCS specifications.

Some harvesters have a tendency to blow all seed away from the machine. A small block of wood fastened to the side of the discharge snout end will correct this problem. The block of wood causes seed to drop near the blower and results in even distribution.

To build the seeder, a 50-gallon barrel is converted into a hopper with a valve to regulate flow into the blower. To do this—

—Cut the bottom out of a 50-gallon drum by either chiseling or burning.

—Mount the drum on a forage harvester or blower, bung down so that the seed flowing through the control valve is pulled into the blower. Fasten it securely with bolts and angle-iron braces.

—Control the seed flow by using standard 1½ inch bushings in a 2-inch bung opening. A rubber ball attached to a rope threaded through the hole over a pulley to the tractor seat makes a simple on-off valve.

The seeder works. The stand of rye seeded last August was excellent by November on the silt loam soils. The stand seeded on the thinner shaly soils also provided satisfactory cover by November.

We found a practical solution to the problem. It was simple, inexpensive, and effective. I heard a saying once, "Don't say it can't be done. Sooner or later you'll meet someone who has done it!"

It would have been easier to say, it can't be done! But we would have missed out on an interesting and satisfying experience. And, if we have you wondering, plans for this seeder are available from the field office, Soil Conservation Service, Federal Building, Lebanon, Pennsylvania 17042. ♦

Down to Earth With Lisa

by Gene Warren
Public information officer, SCS, Alexandria, Louisiana

Pretty, blonde Lisa Conly walked into the field, shoved a spade into the soil, knelt, let a handful sift through her fingers and said, "There's no doubt about it, this soil is a Ruston fine sandy loam."

Strange talk from a very attractive 16-year-old high school girl? Not really, because Lisa has walked away with top honors in Louisiana as the highest scorer in the 15th annual state Soil Judging Contest sponsored by the Future Farmers of America (FFA). She is the first girl to win in the state contest.

"The funny thing about all this," Lisa says, with a still-

Lisa studies soils with her father, a supervisor with the Saline Soil and Water Conservation District, and James D. Parkman, SCS district conservationist.

disbelieving grin, "is that this is my first year for FFA work.

"My friend, Kathy Owens, and I decided to enroll in the FFA chapter really just to try something different. This is the first year girls can get into FFA work at our school, so we gave it a whirl. Before long, though, we got interested and worked real hard, especially for the contest."

Lisa's interest in the land comes naturally. She is the sixth generation of Conlys to live in the Ringgold area. All have been farmers and conservationists.

Lisa's parents, Kenneth and Pat Conly, have a 270-acre dairy farm just rock-throwing distance from where Lisa's great-great - great - grandfather first sank a plow in the rolling land some 130 years ago.

Her dad is a member of the Saline Soil and Water Conservation District Board and her late grandfather, Ruel Conly, was a state and national conservation leader.

"When you get right down to it, I suppose it's only natural that I want to know more about the soil and things that grow from it," Lisa said. "I remember Pop Conly pretty well and all the things he did for conservation. He developed much of the land where we live now, and he was once president of the Louisiana Association of Conservation Districts. He also helped organize the National Association of Conservation Districts."

Lisa likes to show off photographs of her grandfather shaking hands in 1937 with Dr. Hugh Hammond Bennett, the first chief of the Soil Conservation Service, and of her dad when he was an active FFA member years ago.

At home, Lisa helps run the 40-head milking herd. She milks cows, mows pastures, puts up silage and hay, and carries out other chores.

"Really, farm work is good for me," she said. "Most girls may tend to shy away from

Lisa's grandfather, Ruel Conly, greets Hugh Hammond Bennett on a visit Bennett made to Louisiana in 1937 when Conly was president of the Louisiana Association of Conservation Districts.

boys' work, but not me. Besides, Daddy says my brother Kenny and I sure help keep down labor expenses. It makes me feel good knowing I contribute to the welfare of the family. I think many young people miss being part of a family that works as a team."

Clarence Mason, FFA adviser at Ringgold High School, says Lisa is a top student and FFA member. "She was one of the best for the team. There were several students competing for the soil judging team and she and Kathy were near the top of the list." Lisa, Kathy, and two boys represented the chapter as a team at the state contest —and won that also.

Lisa says she learned many good things while studying for the contest. "I've lived out here all my life, seen things grow and all, but never put it all together, like why some plants grow in some places better than in others. Now I know it's usually because of different soils. Don Parkman, district conservationist for the SCS at Ringgold, showed us a lot about soils and how they were formed. That's interesting to me. Now when I go over the farm, or even drive along the road, I see things I never noticed before.

"In the contest we had to learn about soil depth, color, its texture, problems of the land, the amount of slope, and the kind of conservation treatment needed. I used to wonder why dad fertilized grass. Now I know it's to give it food lacking in the soil. I think all this has helped me understand how land should be used and about the need to care for the land for the future."

What would Lisa Conly like to make of her life? "Well I haven't narrowed it down," she says, "but I want to do something to help people, maybe a professional conservationist of some sort. I'm giving that some deep thought. I think to help people understand the land and its resources would be exciting and rewarding. I have a few years to make up my mind about that, though."

In the meanwhile, Lisa Conly likes to tell how she put some 300 boys in their places when she stepped up and took her plaque for knowing more about the soil than all of the rest. But she will also tell you that winning was a great honor, she owes much to many, and that she wishes her grandfather was around to share in her glory, "Because chances are he was the beginning of it all." ♦

A Second 'First'

We hope we've now "found" the first woman in the country to head a state soil and water districts commission.

We thought we had her last October when we published an article on Betty Broemmelsiek of Missouri's Soil and Water Districts Commission.

Now we think we have her with Elizabeth K. Brown, chairman of the Connecticut Council on Soil and Water Conservation.

After reading our October issue, Ms. Brown wrote:

"It was good to see from your article on Betty Broemmelsiek that women in other parts of the country are also being called upon to lead soil conservation efforts.

"I challenge the statement, however, that she is the first woman in the country to serve as head of a State Soil and Water Districts Commission.

"I was elected chairman of the Connecticut Council on Soil and Water Conservation on September 18, 1974. I am also the chairman of the Hartford County Soil and Water Conservation District.

"The Council is made up of one representative from each district in the state, and several state officials with environmental responsibilities. It is affiliated with the Connecticut Department of Environmental Protection (DEP) and is charged with coordinating the activities of the DEP and conservation districts. Our major goal is strengthening district operations. Most of Connecticut's soil and water problems stem from rapid urbanization, and we also worry about preserving farmland.

"Just wanted to let you know that Connecticut is in the forefront in recognizing the equality of women. We have a woman governor, you know—

"I find your magazine very interesting and helpful."

As noted in our October article, the Missouri Soil and Water Districts Commission was formed in January 1975 in a reorganization of state government.

Therefore, Ms. Brown is indeed the first woman to head a state soil and water districts commission. Unless we get another letter . . . *D.M.* ♦

Conservation With CETA

by Dick Crowley
District conservationist, SCS, Mercer, Pennsylvania

Summer maintenance of dams . . . critical area treatment on roadsides and surface-mined areas . . . establishing trails at the nearby McKeever Environmental Center.

These are all conservation projects undertaken by youth employed in Mercer County, Pennsylvania, under the Comprehensive Employment and Training Act (CETA) of 1973.

The Mercer County Conservation District established the Mercer County Environmental Improvement Corps last year with funding through CETA.

This corps has included two foremen, eight crew members, a soil conservationist, a conservation technician, and a clerk-typist. They receive training as they do conservation work in the district, with the Soil Conservation Service assisting in much of the training.

The corps has worked on park drainage projects, improved fish habitat on McCutcheon Run, and gathered seeds from Arnot bristly locust for conservation plantings throughout the county. Members have helped complete seven measures of the Penn Soil Resource Conservation and Development Project, from critical area seeding to timber stand improvement, under guidance provided by the Soil Conservation Service.

To provide transportation for the corps, the county commissioners bought a used van from the telephone company.

What is the reaction of the youth involved in the project? Elizabeth Stagl, CETA-employed soil conservationist, said: "Great experience and training—really beautiful! It has given me an opportunity to help those among whom I have lived, the rural people." ♦

Elizabeth Stagl, CETA-employed soil conservationist, looks at the Environmental Improvement Corps' van with Charles McCracken, Mercer County Commissioner, author Dick Crowley, and James Mondok, executive assistant of the Mercer County Conservation District.

Mobile Conservation Lab At Work In Pennsylvania

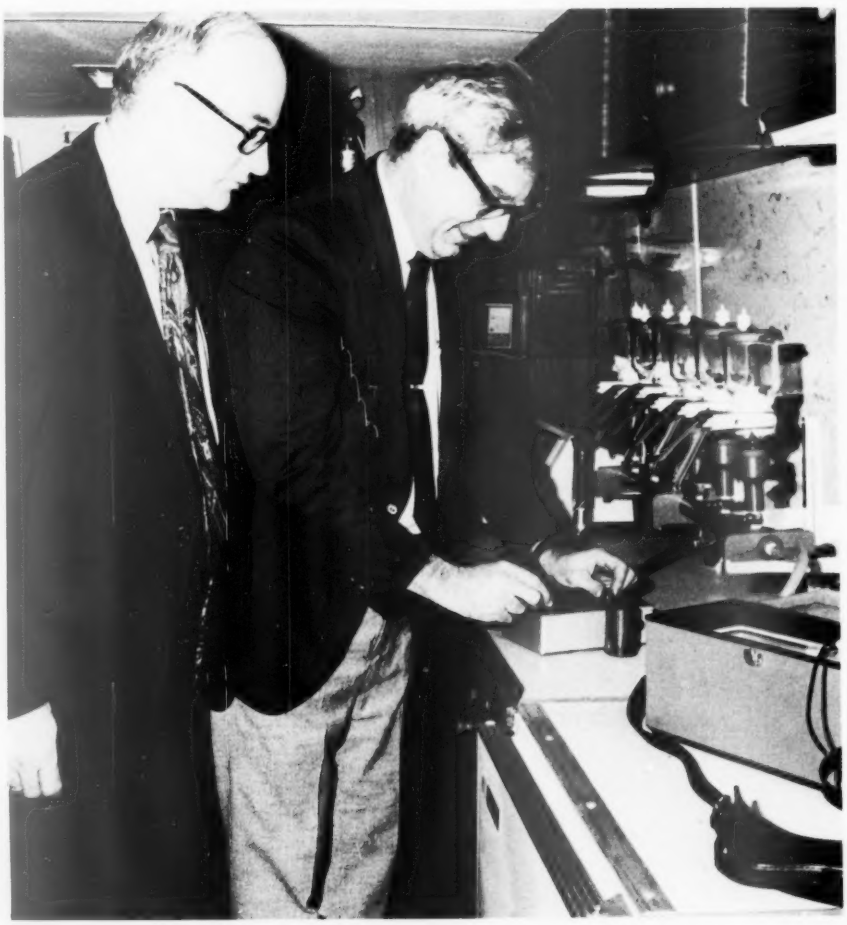
by Francis R. Licsko
Area conservationist, SCS, Ann Arbor, Michigan*

"Talk about creating environmental awareness—this van will do it."

That's what the president of Westmoreland County Community College near Pittsburgh, Pennsylvania, says about the college's new laboratory-on-wheels.

The 22-foot "Mobile Conservation Lab" contains a sophisticated laboratory for monitoring and testing air, water, and soil. The prime purpose of the laboratory is to train conservation and environmental technicians—employees sought by the steel and coal industries

* formerly RC&D Coordinator, SCS, Monessen, Pennsylvania



Dr. William Shea demonstrates the conductivity meter in the mobile lab to Dr. John Carmichael, president of the college. On opposite page, with Dr. Shea at the wheel, the conservation lab is ready to roll, taking college students and the laboratory to the field for practical instruction.

of the greater Pittsburgh area.

The lab is a teaching tool of the Conservation and Environmental Technology Department of the college. Among the courses in which it is used is one on soil erosion and siltation in urban areas. The course covers soil erosion and sediment control from planning to completion of construction.

Dr. William D. Shea, head of the department and originator and designer of the mobile laboratory, notes that the lab has full capacity for physical and chemical analysis of soils.

"The mobile conservation laboratory provides onsite instruction," Dr. Shea said. "Classroom and laboratory teaching are too confining, too limited, especially in the field of conservation and environmental technology."

Students keep operational performance checklists with special emphasis on data logging, calibration of equipment, troubleshooting, and maintenance, Dr. Shea said.

Organizations involved in getting the van "moving," so to speak, include the Appalachian Regional Commission, the Army Corps of Engineers, the Pennsylvania Department of Environmental Resources, the Penns Corner Resource Conservation and Development Project Council, the Soil Conservation Service, the Westmoreland County Conservation District, and the college's lay advisory committee.

For example, SCS Soil Scientist Jay Weaver helped set up soils instruction using the mobile lab and Executive Assistant Elwood Leslie of the Westmoreland County Conservation District helped in community support of the project. The Penns Corner RC&D Project Council is working to help the college obtain funds for additional equipment for the laboratory, especially for air sampling.

The green and white van is planned for instructional uses only. However, in emergency conditions, it would be available to local governments for special surveillance and monitoring, according to John Carmichael, president of the college.

"We have already had several fringe benefits from the mobile conservation laboratory," Dr. Carmichael said. "Several of the large industries in the area have asked if they can send their personnel for training on environmental technology."

Now, with the mobile conservation laboratory rolling over the roads of Westmoreland County, a lot of people will see it . . . and think more about conservation and the environment. ♦

Scouts Battle Erosion At Cavalry Lookout Post

by Ray J. Svacina
District conservationist, SCS, Jacksboro, Texas

The hill had once supported a cavalry lookout post for Indians.

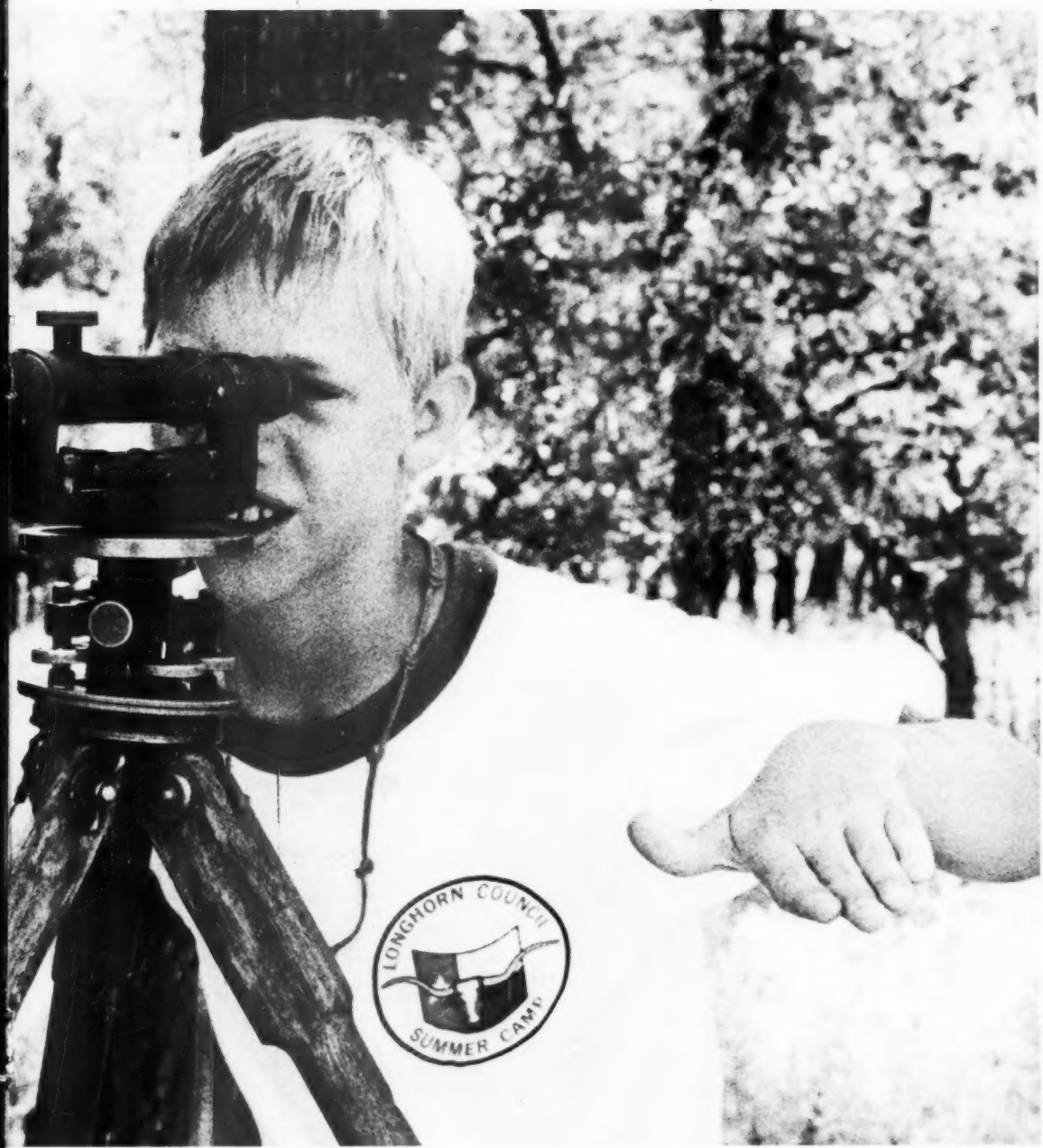
Last summer, however, it was the scene of a "battle of erosion."

Armed with newly learned knowledge on controlling erosion, Boy Scouts attacked the eroding hillside with surveying equipment, shovels, and wheelbarrows.

The occasion was the annual ecology camp at the Sid Richardson Scout Ranch in Jack County in north central Texas. The camp, sponsored by the Longhorn Council of the Boy Scouts of America and the Upper West Fork Soil and Water Conservation District, is designed to help Scouts qualify for merit badges in soil and water conservation.

For several years, the Soil Conservation Service has provided instructors for the camp. Last year, the instructors selected the eroding hillside as an ideal resource to teach ways to control gully erosion.

After several days of field trips and classroom instruction with SCS agronomist Arnold King and SCS soil scientist Lee



A surveyor's level gets put to work as Boy Scouts fight a "battle of erosion" at an ecology camp in Texas.

Putnam, the Scouts headed for the hill.

They watched SCS area engineer John Pipes pull out a tripod. Several hundred feet down the hill, J. D. Lowrie, SCS conservation technician, explained the numbers on a Philadelphia rod.

Before long, the Scouts were surveying as if they were professional engineers — even

though they had to stand on two flat rocks before they could see through the scope.

The Scouts were told why the erosion occurred . . . and how to stop it. They laid out a diversion terrace to head off the gullies, then picked up shovels and wheelbarrows and constructed that diversion.

Last summer's Scouts are gone now, but their mark remains on the land. It will be one more "visual aid" this summer to explain principles of soil conservation. ♦

SCS agronomist Arnold King provided basic instruction on ecology and biology.

Missouri's New Exhibit Attracts Large Crowds

An estimated one million midwesterners viewed Missouri's new modular exhibit on soil surveys last year, including 200,000 at the Farm Progress Show held near Chicago.

The revolving SCS exhibit stands 7 feet high and consists of eleven 14-inch cubes, each with one or more back-lit transparency depicting various soil uses, both proper and improper.

The primary message is to encourage the public to use soil surveys in land use planning. The idea for the theme came after the Soil Conservation Service published nine leaflets last year on various uses of soil surveys.

The theme is broad enough to be of interest to many groups, including farmers, ranchers, homebuyers, land use planners, and teachers.

Nevertheless, Missouri's modular exhibit isn't limited to this one theme. The transparency panels can be changed easily to fit an entirely different theme.

Assembly and disassembly of the exhibit takes a few tools and little time. Cases for the exhibit were designed to fit in a station wagon or pickup truck, thus simplifying transportation. ◆

SCS's modular exhibit in Missouri on soil surveys was viewed by an estimated one million midwesterners last year.

Probing for Knowledge Of Our Soils

by **Dick Lehnert**
(Reprinted with permission from the **Michigan Farmer**, September 1975)

"We're moving down off the moraine now and out into the glacier's outwash."

Something about the way Jerry Larson said that made me look over my shoulder, as though I might find that towering wall of ice and a flow of newly melted water and dislodged rock slowly grinding themselves into the soil of Michigan.

But that was gone 10,000 years. Behind me now was a field of green corn busily working on its fourth leaf and, off in the distance, a field of alfalfa in the early bud stage.

Nonetheless it was eerie. Walk out into your own fields and try it. Look at the scratches on some stones, or the smooth roundness of others; look at the hills and the valleys. Realize that what happened thousands of years ago, when this state was being stamped out under the grinding power of the ice age, today affects you.

It affects where and how you build your buildings, and whether the floors and walls stand straight and the basement stays dry.

It affects how well your septic tank and drain field works.

It affects how you manage your land; whether you need conservation methods on the slopes; whether you need tile; what kind and how much tillage your land needs; what kinds of crops you can grow and crop rotations you can use.

It affects how much lime you must apply.

It affects how much pressure your land is under from builders seeking housing sites for urban emigrants.

Jerry Larson knows all that. "You mean you can walk across a man's farm and tell how well his toilet's working?" I said, and Jerry laughed. "You bet I can," he said.

But he probably won't. Larson, 33, is a tall, well-muscled, smiling son of Swedish immigrants who settled near Edmore in Montcalm County. After spending his young life milking cows and picking up potatoes, he went to Michigan State University which, in 1962, he left as a soil scientist.

After a stretch in the military, he began the practice of his profession in which, daily and alone, he walks the fields of Michigan boring 5-foot-deep holes in the ground, and by so doing, ferreting out the details of the workings of people's bathrooms and other private details.

He doesn't, of course, do it for himself. He is part of a massive effort, the goal of which is to map every land acre of the state of Michigan by the year 2000. The project is a joint ef-

SCS soil scientist Jerry Larson at work testing for lime . . .

fort of the U.S. Department of Agriculture's Soil Conservation Service, for which guys like Jerry work, the Michigan Agricultural Experiment Station, and the local County Board of Commissioners.

Jerry, the project leader, with David Walling and Danny Tippy, have been working for a year now on what will be a 5-year project to soil map Berrien County. I spent a day with him walking among the corn, grapes, soybeans, and alfalfa on Alvin Ott's fruit and dairy farm near Baroda.

"This county's soil survey will cost about $250,000, and ultimately the information we gather will end up in publication of about 5,000 booklets," Jerry said. "If the benefits of this project are not understood and made useful, they're no good to anybody. It just becomes an expensive publishing project."

But the land of Berrien County, like that of so many other counties in southern Michigan, is under tremendous pressure. Everybody wants to use it for purposes often in conflict with each other.

"There are a lot of heavy soils in the county, but the soil types run the whole range from 60-foot-deep sand to solid clay," Jerry said.

Often, just the discovery of the nature of the soil itself is enough to end competition for the land. Some of the land cannot be used for septic tanks because it is not permeable enough to water to make a drain field that will work. Sometimes the land is so naturally wet a basement cannot be built without filling with water.

If this kind of information is available, it helps all kinds of people. Buyers looking for home sites won't be bilked out of their savings—and farmers won't find such land rising in value because of pressure on it. Much land not suitable for building is excellent farmland if handled properly and, possibly, tiled to improve drainage.

The Soil Conservation Service has recently begun publicizing to the general public some of the benefits of soil survey information. They have a series of nine brochures aimed at home buyers, farmers, engineers, developers, builders, and others acquainting them with what soil information is available and how it can help them.

Guys like Jerry and his associates gather that information.

Mapping Soils

Soils have undoubtedly been studied for eons. It's easy to imagine ancient man planning a route that takes his bare feet over sand or organic matter instead of rocks and sun-baked clay. As in many other fields, however, in the last century these kinds of simple observations have been collected and organized scientifically.

What does that mean?

The essence of such scientific work is logical classification. It's done in plants and animals and thousands of other

. . . and checking the slope of the land.

things, including soils.

Just as the average man knows robins from sparrows from pigeons because of their different characteristics, a soil scientist is able to tell "Pewamo" from "Miami" from "Conover" by knowing the characteristics behind the names. A soil is given a name after each layer (called horizons) to a depth of 5 feet has been described.

What does "Pewamo" mean to a soil scientist? The description goes like this: "The Pewamo series consists of poorly drained and very poorly drained soils formed in loamy glacial till. Pewamo soils have a very dark-brown clay loam surface layer 9 inches thick. The next layer is black clay loam 3 inches thick. The subsoil is grayish-brown and gray mottled with dark yellowish-brown clay loam. Pewamo soils are on till plains, till plains modified by lake waters, and moraines. Slopes range from 0 to 2 percent. Most areas are cultivated."

From this data, he knows the soil is not suitable for drain fields and basements, that ditches dug in it will seep full of water, that roads built on it will break up under the influence of water and frost action. He knows it would be a good soil in which to dig a reservoir or farm pond, and that certain trees grow well, and others do not. He knows that plants that can stand "wet feet" will do better than legumes. And he knows the kind of native plants that will most likely be found growing on it.

More to the point, others besides soil scientists can know it, too. This information will all be included in the official soil survey report for the county, broken down township by township. The information is available to everybody.

There are more than 300 names describing the soils of Michigan and about 3,000 covering the nation. What is startling is not that there are so many, but so few. All the soils of Michigan—36.5 million acres—can be described by 300 names!

And all these names can be discovered with just a few tools and a key that helps arrange what a person can observe into a logical order.

Even with the mental and physical tools, however, mapping soils in Michigan isn't easy work, says Jerry. "Forty acres is a big mapping unit here," he said, referring to the variability of the soils. "In some states, all the land in three adjacent sections might be alike."

Essentially, Jerry's job is to mark on aerial photos lines that surround and set apart, one from another, areas of different soil type. His job is to discover the name of the soil, for once it is named many things are known about it, no matter where it occurs. The major problem is that so many fields change their soil-type name so often.

As a trained soil scientist, Larson does not work strictly by trial and error. He can tell by looking at obvious surface changes when the soil name is going to change. He then bores another 5-foot hole to find what it changed to.

His primary tool is a boring auger with a 5-foot handle. As he cuts a 3-inch diameter hole into the ground, he pulls up soil every few inches. He notes its color, tests its texture by rubbing it between thumb and forefinger. He can estimate pretty closely the relative amounts of sand, silt, and clay in the soil just by feel.

Color is often a giveaway to the soil's internal drainage. If soil is reddish or rusty colored, it is from the oxidation of iron and aluminum in the soil, Jerry said. That means the soil gets air into it to oxidize these metals, and thus it is well drained. Air can't get through water.

If the soil is gray, it indicates it is poorly drained. The gray color comes from what is called reduction of iron and aluminum, and this takes place when oxygen can't get into the wet soil.

A small bottle of hydrochloric acid is used to discover lime in the soil, which bubbles when the acid touches it. This is a test to find when the soil auger has reached "parent material." Most of the parent material of soils in Jerry's area were limey rocks. In northern Michigan, this is not always the case.

Jerry also carries a soil testing kit to determine soil pH, and an Abney level to determine the degree of slope in the land. He carries a soil probe, which he can use instead of the auger in some soils. This

works much faster—if conditions are right so it can be pushed into the soil.

Survey Status

The target of having all the land mapped by the year 2000 is a national goal as well as state, said Rod Harner, SCS state soil scientist. As of July 1, 1975, about 12.3 million acres in Michigan had been mapped, about one-third of the state.

"When soil surveys first started, they were agriculturally oriented," Harner said. "The soil survey and knowledge of soils on farms are basic to our work with farmers." Consequently, most of the land now mapped is farmland and woodland in southern Michigan.

Farmers who have been SCS cooperators have had surveys done on their farms. Soil scientists now are filling in the gaps between farms owned by cooperators, and working on the farms of new cooperators.

"Our goal for the 1976 fiscal year is to do 885,000 acres in Michigan. At that rate, it will take about 25 years to complete the state survey," Harner said.

Since the surveys began, more and more people have found use for the information. Demand for the data has led to publication of "interim reports" for use by local government agencies and personnel, such as county sanitarians, development plat reviewers, road builders, etc. So when a township is completed, that information is published.

At the end of work in a county, all the information is compiled, published (in several thousand copies), and made available to the general public.

But it doesn't end there. From these soils maps, interpretative maps can be made. For example, Harner said, plastic overlays might be made on which all wet soils with sewage disposal limitations are colored in blue. When that overlay is laid on the soil map, it gives a vivid picture.

Sometimes interpretative maps are made using soils information plus some other kind of information. In Grand Traverse County, for example, soils information has been combined with data on altitude and air drainage. This indicates the degree of suitability of the land as sites for red tart cherry orchards.

The number of uses for soil survey maps is apparently limited only by the number of people who want to use land—and that appears to be somewhat in excess of four billion on planet Earth. ♦

That's L.I.F.E.

Franklin Parish, Louisiana, has received the special merit award in the county category of the 1975 national awards program of Keep America Beautiful, Inc. (KAB).

The parish was cited for the many concentrated action programs of its "Let's Improve Franklin's Environment" (LIFE) program. The idea of the program began with the Northeast Soil and Water Conservation District (see October 1975 SOIL CONSERVATION). LIFE has grown from an effort to reduce the problems of litter and solid waste to a parish-wide force working in many environmental areas, including erosion control and recreation and wildlife area improvement, KAB noted.

LIFE is cosponsored by the Northeast Soil and Water Conservation District and the Parish Chamber of Commerce. ♦

H. H. Finnell—Pioneer in Wind Erosion Control Research

"He preached two things: know how to save rain; know how to use rain," reported the Pawhuska Daily Journal-Capital in Oklahoma.

The "preacher" is the late H. H. Finnell, a pioneer in wind erosion control research and originator of the wind erosion control action program in the Southern Great Plains.

Last fall, in a ceremony at Oklahoma State University, Mrs. Finnell presented the Finnell Collection to the library. The collection includes scientific papers, articles, and other work of one of the early leaders in wind erosion control research.

Finnell served as director of the Panhandle State Experiment Station in Oklahoma from 1925-1934, was director of the SCS Wind Erosion Control Demonstration Project in Dalhart, Texas, in 1935, and served as SCS regional conservator in Amarillo, Texas, from 1936-1942.

Also at the ceremony, the National Association of Conservation Districts (NACD) presented a plaque to Mrs. Finnell to commemorate the contribution Finnell made to research and wind erosion control. The plaque is on display at the agronomy department of Oklahoma State.

The ceremony was sponsored by Oklahoma State University, the Soil Conservation Society of America, NACD, and SCS. ♦

ARS Reports New Technique To Save Irrigation Water

A new technique for irrigating bean plants in early stages of growth can cut water use by half—as well as reduce soil losses by furrow erosion and runoff.

That's the report from the Agricultural Research Service where a soil scientist and an agricultural engineer at the Snake River Conservation Research Center in Kimberly, Idaho, have worked out a multiset surface irrigation system to small lister-type furrows.

The researchers used an ordinary surface planter to seed beans into the deep furrows several days after the preplanting irrigation. Frequent, light irrigations were then applied directly around the beans growing in the lister furrows. At the last cultivation, standard irrigation furrows were reformed in the centers between the rows of bean plants and irrigated in a conventional manner until harvest.

In total, 14 to 16 inches of water were applied to the bean plants each season using this new technique. Conventional irrigation methods average 22 to 28 inches of irrigation water each season.

Fishing Award

The Sport Fishing Institute has presented a commendation award to the Soil Conservation Service for its contribution "toward the future of sport fishing." The award cited SCS's participation in the First National Bass Symposium in Tulsa, Oklahoma, last year.

Reviews

Forests For Whom And For What? Marion Clawson. 1975. *Published for Resources for the Future, Inc. by The Johns Hopkins University Press, Baltimore and London. 175 pp., $11.95 cloth, $3.65 paper.*

Marion Clawson writes as he speaks—in a quiet, factual, unassuming, but powerful manner. He approaches his subject methodically and without display of emotion or bias.

After a discussion of the policy issues which must be faced, he lays out a framework for analysis by naming the five criteria against which policy decisions must be weighed. These are physical and biological feasibility, economic efficiency, social welfare, cultural acceptability, and operational practicality. He recognizes that the five criteria cannot be weighed individually and so he adds a sixth—the satisfactory integration of the first five.

Too many of those who hold forth on forest policy are concerned with only one aspect of forest use, such as wood production or wilderness. Clawson speaks with equal concern for seven principal uses of forests—attractive environment, recreation, wilderness, wildlife, watershed, general conservation, and wood production.

In the last chapter he gives his conclusions on the major forest policy issues. He stresses the need for flexibility, the importance of recognizing the land's productivity potential as a base for policy decisions, and the necessity for accepting a mix of uses on most lands.

There is subject matter for serious thinking in this small book—**William J. Lloyd, *Chief Forester, SCS, Washington, D.C.***

Sedimentation Engineering. 1975. *American Society of Civil Engineers, 345 East 47th Street, New York, N.Y. 10017. 745 pp., illus. $30.*

This comprehensive publication deals with sediment and sedimentation problems encountered in the development, use, control, and conservation of land and water resources. The aim of its authors is to give concerned persons a better understanding of the nature and scope of sedimentation problems, proven and available methods of investigation, and of practical approaches to the solution of such problems. The seven major sections of this 800-page book present in-depth coverage of:

- Nature of Sedimentation Problems
- Sediment Transportation Mechanics
- Sediment Measurement Techniques
- Sediment Sources and Yields
- Sediment Control Methods
- Economic Aspects of Sedimentation
- American Sedimentation Law and Physical Processes.

Three extensive appendices are devoted to pertinent information sources and to design and operational data. Detailed subject and author indices are provided for easy access to desired information.

This long-awaited manual was prepared under the supervision of the Task Committee for the Preparation of the Manual on Sedimentation of the Sedimentation Committee of the Hydraulics Division of the American Society of Civil Engineers. The idea for the work was conceived by the late Carl B. Brown, SCS, in 1949 when he was the first chairman of the Sedimentation Committee. Vito A. Vanoni assumed the responsibility for this work in 1954 when he was appointed chairman of the newly formed Task Committee. The text was prepared from the reports published in the ASCE Journal of the Hydraulics Division and the discussions of these reports.—**William F. Mildner, Geologist *(Sedimentation), SCS, Hyattsville, Maryland.***

Soil surveys

Alabama

Escambia County. By Martin G. Mattox. 1975. Soil Conservation Service and Forest Service in cooperation with Alabama Department of Agriculture and Industries and Alabama Agricultural Experiment Station. 98 pp., illus.; maps.

Minnesota

Nobles County. By Dale Lorenzen and Donald W. Calkins. 1975. Soil Conservation Service in cooperation with Minnesota Agricultural Experiment Station. 78 pp., illus.; maps.

North Carolina

Catawba County. By Edward O. Brewer. 1975. Soil Conservation Service in cooperation with North Carolina Agricultural Experiment Station. 48 pp., illus.; maps.

Puerto Rico

Mayaguez Area of Western Puerto Rico. By Roberto E. Gierbolini. 1975. Soil Conservation Service in cooperation with University of Puerto Rico, College of Agricultural Sciences. 296 pp., illus., maps.

Virginia

Henrico County. By John W. Clay. 1975. Soil Conservation Service in cooperation with Virginia Polytechnic Institute and State University. 119 pp., illus.; maps.

Meetings

March

25–27 *Northeastern and Southeastern Sections Annual Meeting of the Geological Society of America, Arlington, Va.*

28–Apr. 2 *American Concrete Pipe Association, Coronado, Calif.*

April

4–6 *American Pulpwood Association, Atlanta, Ga.*

5–6 *"Air Pollution Standards and Indices" Conference, Toronto, Canada*

5–7 *Cordilleran Section Annual Meeting of the Geological Society of America, Pullman, Wash.*

6–8 *Great Plains Conservation Program Seminar on "Conflicts and Issues in Water Quality and Use," Denver, Colo.*

7–9 *Fourteenth Annual Symposium on Engineering Geology and Soils Engineering, Boise, Idaho*

7–10 *Association of Interpretive Naturalists Bicentennial Workshop, College Park, Md.*

11–14 *Association of American Geographers, New York, N.Y.*

11–16 *National Water Safety Congress, Overland Park, Kans.*

12–16 *American Geophysical Union, Washington, D.C.*

25–27 *Chamber of Commerce of the United States, Washington, D.C.*

26–28 *National Academy of Sciences, Washington, D.C.*

26–29 *International Hydrology Symposium, Bowling Green, Ky.*

28–May 1 *North Central Section Annual Meeting of the Geological Society of America, Kalamazoo, Mich.*

May

2–5 *Annual Spring Meetings of the Hardwood Plywood Manufacturers Association, Scottsdale, Ariz.*

2–6 *American Institute of Architects, Philadelphia, Pa.*

9–12 *National Forest Products Association, Washington, D.C.*

19–21 *Twenty-seventh Annual Meeting of the Highway Geology Symposium, Orlando, Fla.*

20–21 *Rocky Mountain Section Annual Meeting of the Geological Society of America, Albuquerque, N. Mex.*

25–26 *National Soil Erosion Conference, Lafayette, Ind.*

30–June 4 *American Institute of Biological Sciences, New Orleans, La.*

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